Supporting Information

Reverse Anti-solvent Method to Avoid Jelly-like Phase Generation and Preparation of Crystalline Cefquinome

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Figure S1

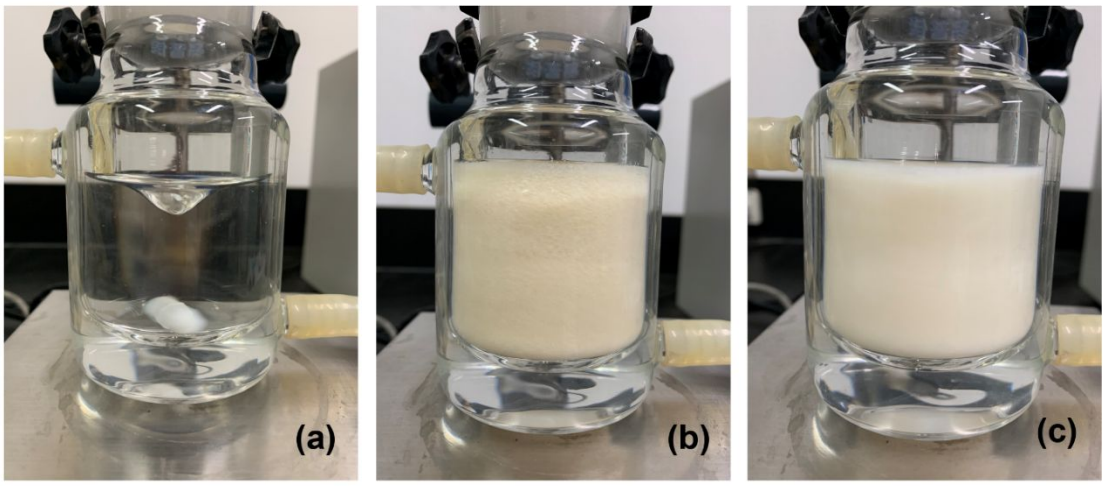

Figure S1. Reverse anti-solvent crystallization process, (a) Transparent anti-solvent Acetone; (b) After the addition of CFQ solution,t=0h; (c) Slurry for 8h. .

Table S1

Table S1. Mole fraction solubility of crystalline cefquinome and sulfate cefquinome in three pure solvents at different temperatures (P=0.1 MPa)

T/K	10^3X_i (water)		10^3 X_i (Methanol)		10^3 X_i (Ethanol)	
	SCFQ	CFQ	SCFQ	CFQ	SCFQ	CFQ
278.15	1.0201	1.4291	0.2478	0.0453	0.2033	0.0521
283.15	1.0522	1.5240	0.2633	0.0567	0.2434	0.0562
288.15	1.0704	1.7326	0.3256	0.0690	0.2732	0.0611
293.15	1.1396	1.8208	0.3845	0.0735	0.3521	0.0624
298.15	1.1601	1.8469	0.4278	0.0801	0.4256	0.0634
303.15	1.2094	1.9827	0.4678	0.0901	0.4767	0.0721
308.15	1.2432	2.0432	0.5237	0.1035	0.4998	0.0736
313.15	1.2987	2.2534	0.5461	0.1166	0.5234	0.0772

X_i: the mole fraction solubility of crystalline cefquinome or sulfate cefquinome in binary solvent mixtures at temperature T.

Table S2

Table S2. Solubility of crystalline cefquinome in Acetone-Water system at T=293.15K (P=0.1 MPa)

X^0_{Ace}[a]	10^3X_{CFQ}[b]	W_{CFQ}[c]	W_{Ace}	W_{water}
0	1.8208	0.0509	0.0000	0.9491
0.05	3.4889	0.0847	0.1329	0.7824
0.1	5.0024	0.1078	0.2355	0.6568
0.15	6.2436	0.1215	0.3187	0.5597
0.2	4.6324	0.0864	0.4079	0.5057
0.3	2.8521	0.0480	0.5525	0.3995
0.4	1.8245	0.0276	0.6638	0.3086
0.5	1.1257	0.0154	0.7516	0.2329
0.6	0.4834	0.0060	0.8238	0.1702

0.7	0.1257	0.0014	0.8815	0.1171
0.75	0.0689	0.0008	0.9057	0.0936
0.8	0.0352	0.0004	0.9277	0.0719
0.85	0.0149	0.0002	0.9480	0.0518

a) X^0_{Ace}: the initial mole fraction of acetone in binary solvent mixtures; b) X_{CFQ}: the mole fraction solubility of crystalline cefquinome in binary solvent mixtures at temperature T; c) W_i: the mass fraction of components in solvent mixtures at temperature T;

Table S3

Table S3. Solubility of amorphous cefquinome in Acetone-Water system at T=293.15K (P=0.1 MPa)

X^0_{Ace}[a]	W_{CFQ}[b]	W_{Ace}	W_{water}
0.25	0.2236	0.4037	0.3727
0.275	0.0826	0.5046	0.4128
0.3	0.0638	0.5433	0.3929
0.4	0.0386	0.6563	0.3051
0.5	0.0225	0.7463	0.2313
0.6	0.0099	0.8206	0.1695
0.7	0.0036	0.8795	0.1168
0.75	0.0019	0.9047	0.0935
0.8	0.0008	0.9273	0.0719
0.9	0.0002	0.9665	0.0333

a) X^0_{Ace}: the initial mole fraction of acetone in binary solvent mixtures; b) W_i: the mass fraction of components in solvent mixtures at temperature T;

Table S4

Table S4. The point of JLP formation by using anti-solvent crystallization in Acetone-Water system at T=293.15K (P=0.1 MPa)

Trial No.	W_{CFQ}^{c}	W_{Ace}	W_{water}
1	0.2190	0.4646	0.3165
2	0.1634	0.4909	0.3457
3	0.1260	0.5045	0.3695
4	0.0946	0.5159	0.3895
5	0.0735	0.5253	0.4011

W_i: the mass fraction of components in solvent mixtures at temperature T;